

Claims

What is claimed is:

1. A device for treating a bone structure having a cavity, comprising:
a single elongate laterally resilient wire composed of a biocompatible material,
5 the wire configured to be introduced into the cavity of the bone structure.
2. The device of claim 1, wherein the bone structure is a vertebral body.
3. The device of claim 1, wherein the biocompatible material is
polymethylmethacrylate (PMMA).
4. The device of claim 1, further comprising a plurality of individual
10 elongate laterally resilient wires, each of which is composed of a biocompatible
material and is configured to be introduced into the cavity of the bone structure.
5. The device of claim 4, wherein the bone structure comprises a
compression fracture, and wherein the web-like arrangement is configured to at least
partially reduce the compression fracture.
- 15 6. The device of claim 5, wherein the bone structure is a vertebral cavity
and the compression fracture is a vertebral compression fracture.
7. A kit for treating a bone structure having a cavity, comprising:
a plurality of biocompatible laterally resilient wires; and
a cannula configured for introducing the wires within the cavity of the bone
20 structure in a web-like arrangement.
8. The kit of claim 7, wherein the bone structure is a vertebral body.
9. The kit of claim 7, wherein the wires are composed of a polymer.
10. The kit of claim 9, wherein the polymer is polymethylmethacrylate
(PMMA).

11. The kit of claim 7, further comprising a device configured for applying uncured bone cement onto the web-like arrangement of wires.
12. The kit of claim 11, wherein the device is configured to be introduced within the cannula.
- 5 13. The kit of claim 11, further comprising the uncured bone cement.
14. The kit of claim 13, wherein both the wires and uncured bone cement are composed of polymethylmethacrylate (PMMA).
15. The kit of claim 7, further comprising a plunger assembly configured to be introduced within the cannula to apply a bone growth inducing material between
10 the resilient wires in the web-like arrangement.
16. The kit of claim 15, further comprising the bone growth inducing material.
17. The kit of claim 7, wherein the bone structure comprises a compression fracture, and wherein the web-like arrangement comprises a structure that at least
15 partially reduces the compression fracture.
18. The kit of claim 17, wherein the bone structure is a vertebral cavity and the compression fracture is a vertebral compression fracture.
19. The kit of claim 17, further comprising a separate compression fracture reducing device configured to facilitate reduction of the compression fracture.
- 20 20. A method of treating a bone structure, comprising:
introducing a plurality of biocompatible wires within the bone structure to create a web-like arrangement within the cavity of the bone structure.
21. The method of claim 20, wherein the bone structure is a vertebral body.
22. The method of claim 20, wherein the wires are composed of a polymer.

23. The method of claim 20, wherein the wires are composed of polymethylmethacrylate (PMMA).

24. The method of claim 20, wherein the web-like arrangement comprises points of contact between the wires, the method further comprising applying uncured
5 bone cement onto the web-like arrangement of wires to interconnect the wires at the points of contact.

25. The method of claim 24, wherein the uncured bone cement is sprayed onto the web-like arrangement.

26. The method of claim 25, wherein both the wires and uncured bone
10 cement are composed of polymethylmethacrylate (PMMA).

27. The method of claim 20, further comprising applying a bone growth inducing material between the wires.

28. The method of claim 20, wherein the bone structure comprises a compression fracture, the method further comprising at least partially reducing the
15 compression fracture by forming the web-like arrangement of wires within the cavity of the bone structure.

29. The method of claim 28, wherein the bone structure is a vertebral cavity and the compression fracture is a vertebral compression fracture.

30. The method of claim 28, further comprising inserting a separate
20 compression fracture reducing device into the cavity of the bone structure, reducing the compression fracture with the fracture reducing device, and removing the fracture reducing device to relax the compression fracture, wherein the web-like arrangement of wires is formed within the cavity of the bone structure subsequent to the relaxation of the compression fracture.

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